

(12) **United States Patent**  
**Binder et al.**

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(54) **DEVICE, METHOD AND SYSTEM FOR ESTIMATING THE TERMINATION TO A WIRED TRANSMISSION-LINE BASED ON DETERMINATION OF CHARACTERISTIC IMPEDANCE**

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Fowler, Bill, "Transmission Line Characteristics", National Semiconductor Application Note 108, National Semiconductor Corporation, Jul. 1986, pp. 1-8.

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(57) **ABSTRACT**

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(58) **Field of Classification Search** ..... 324/691,  
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See application file for complete search history.

A system and method for measuring a characteristic impedance of a transmission-line comprises transmitting energy to the line, and shortly after measuring the voltage/current involved and thus measuring the equivalent impedance. The measured characteristic impedance may then be used in order to determine the termination value required to minimize reflections. In another embodiment, the proper termination is set or measured by adjusting the termination value to achieve maximum power dissipation in the terminating device. The equivalent characteristic impedance measurement may be used to count the number of metallic conductors connected to a single connection point. This abstract is not intended to limit or construe the scope of the claims.

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**26 Claims, 17 Drawing Sheets**

